EX SERIES

600

Electric Cassette Steps

series

AVS STEPS

Owners Manual

EXE600HZ

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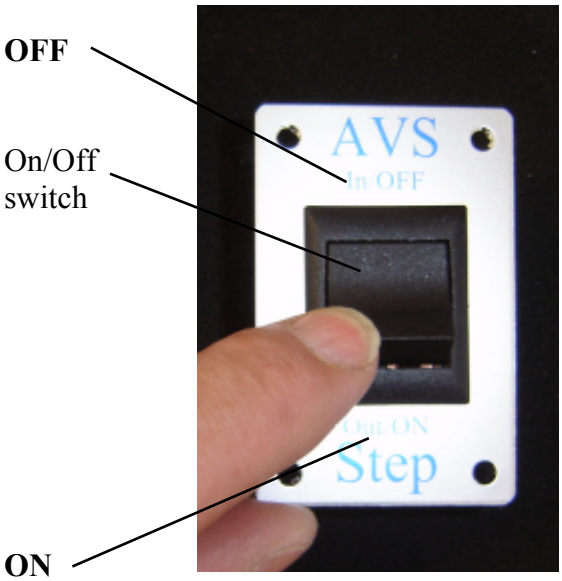
OPERATING INSTRUCTIONS

STEP TYPE	AVS Electric steps	Last Updated	09/07/06
VEHICLE TYPE		Revision no:	0
SIDE			
ENTRANCE			
COUNTRY			

Operating AVS Electric Steps

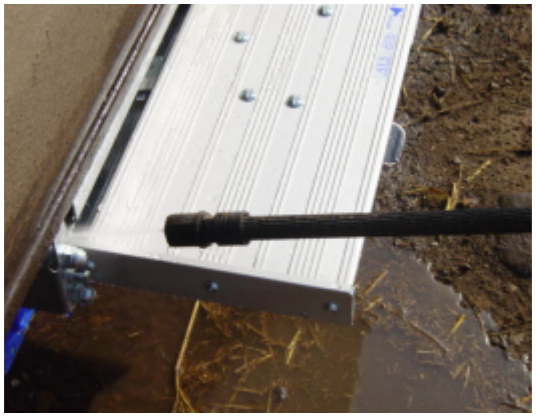


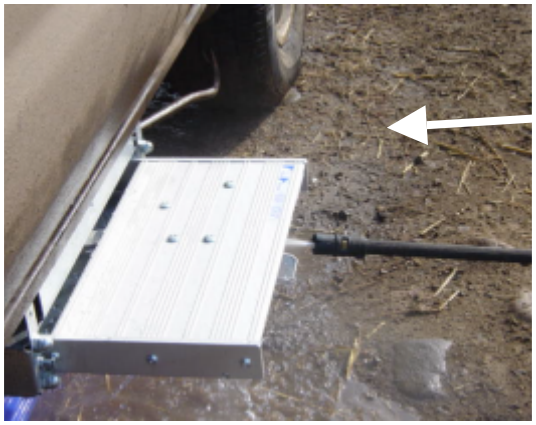
FULLY AUTOMATIC

The step opens and closes as the nearest door is opened and closed. The step can be switched of in the deployed or stowed position by using the on/off switch usually mounted on the dash board. By switching the step off it will not stow or deploy when the door is opened and closed. The red warning light will continue to flash if the step is not stowed even if the on/off switch if in the off position.
(You may wish to isolated the step in the open position with the door closed to allow it to be cleaned.

CLEANING INSTRUCTIONS

STEP TYPES	All	Last Updated	09/07/06
		Version:	2





Cleaning AVS Steps

Steps should be cleaned at least once per month and more often if conditions dictate.

By using a power hose or even a standard hose frequently ensure no build up of material inside the step. The step will “self-clean” if the mud and dirt is lubricated with a power wash.

Remember to clean not just the tread (the bit you stand on) but the side of the step too.

After cleaning the step should be allowed to dry. When dry, a day or two later perhaps, apply silicone spray to help lubricate the movement of the step.

DO NOT USE GREASE. Avoid use of oil, it will simply wash away.

If the conditions are particularly bad daily cleaning may be required.

Every 6 months the bottom cover should be removed completely and the inside of the step physically cleaned particularly either side the stainless steel tubular runners. This can be done as part of the service routine.

Failure to clean the steps regularly or to service the steps may result in the failure of the step in service. This will not be covered under warranty.

We recommend that mud flaps are fitted to your vehicle.

Your step serial number is on the front RHS of the tread. This will tell AVS exactly what type of step you have.

For more information contact AVS on:

	SALES:	AFTERSALES
Tel	01948 880010	01948 780238
Fax	01948 880020	01948 780458

Applying Silicone Spray after the step has dried.

Silicone Spray is supplied by Rocol on 0113 232 2700 www.rocol.com

STEP SERVICE ROUTINE

STEP TYPE	All AVS steps	Last Updated	19/6/06
TITLE	Service Routine	Revision no:	1

AVS Service Routine - EVERY 12 MONTHS

AVS Electric or Manual Steps.

1. Note step serial no and start report
2. Disconnect electrical connections where possible
3. Remove step from vehicle
4. Remove tread plate and lower panel
5. Remove guide rods(Cassette steps only)
6. Clean inside of case
7. Inspect micro switches and clean/lube or replace
8. Inspect tread plate linkage to motor. Check nylon bearings.
9. Inspect and clean/replace stainless steel tubes and rollers as necessary
10. Check nylon guides for wear. Replace as necessary
11. Inspect connections to micro switches and motor including grommets in case
12. Inspect and clean tread plate.
13. Supply and fit weatherproofing kit if not fitted
14. Replace side arm mounting bolts and Loctite as required.
14. Lubricate all parts.
15. Replace cover
16. Refit step. Leave fitting hand tight only.
17. Connect electrics as required. Use waterproof connections is required
18. Operate step approx. 10 times
19 Refit lower panel and tighten fittings
20. Test again and weight test. 150Kg
21. Compile report.
22. Update customer Service Record book (In blue pack provided with Step)

For details of other service agents in your area contact AVS or see details on our web site www.avssteps.co.uk.
We recommend SILICONE SPRAY be used as a lubricant. **DO NOT USE GREASE.**
Service interval is recommended 6 months maximum.
Steps should be cleaned monthly or more frequently depending on operating conditions. Cleaning instructions are available on request, on our web site and in the SERVICE DOCUMENTS provided with every step.

TEL 01948 781000
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www.avssteps.co.uk

FAULT FINDING INSTRUCTIONS

STEP TYPE	Electric T and E	Last Updated	25/06/07
TITLE	Step Failure Diagnostics	Revision	1

AVS STEP FAILURE IN OPEN POSITION

Test 1: With side door **open** / hand brake **on**/ ignition **on**/ step switch **on** (fully auto):

Listen closely to step underneath the vehicle when someone tries to close it by operating the rocker switch (fail safe) or closing the side door (fully auto). (For fully auto steps make sure the side door is open for at least five minutes first to allow the motor thermal switch to cool if the step is jammed in any way and the motor has been trying to close the step. The switch will automatically switch off the motor and needs to cool before it will reconnect.)

If no noise from the step – go to test 2

If step makes a noise but does not move – go to test 3

Test 2: Check 10 amp fuse in power lead to / in control box.

If blown - replace and recheck step operation.

If fuse does not blow again immediately or has not failed proceed to test 4:

If fuse blows immediately on attempted operation of the step:

Pull apart the loom connection plug at back of step unit and check state of the internal pin connectors.

If pins show signs of water contamination clean and re-connect plug and retest step operation.

If pins OK - retry operating step with 5 pin plug still disconnected – if fuse still blows there is a short in the loom from the step plug back to the control box - check loom wires back to control box have not been trapped or become frayed anywhere obvious.

If fuse does not blow with plug disconnected – the short is between the step plug and the step motor unit. - test with a circuit tester earthed to step case and the other lead to each of the power pins in the step loom plug in turn as shown in diagram below:

If there is a circuit from either pin to the step case – there is a short in one of the step motor wires probably within the step unit – remove lower cover of step and check the wires from the motor have not been trapped or become frayed and are shorting out on the case.

Test 3: If step motor is making a noise and continues to make a noise for as long as rocker switch is held down or door closed (fully auto) – check that there is no obstruction in the step unit preventing it closing such as a piece of gravel trapped in the slides / gear mesh of twin arm types. – remove lower cover and disconnect the link arm/s from the tread. Check that the tread can slide in and out easily and check gear meshing point of gear arms on twin arm units are free of any particles that could be jamming them. - If it is clear that there is no external contamination preventing the step moving then the gearbox of the motor has failed and a new motor unit will be required.

Test 4: Unplug step from body loom at plug at rear of step unit. With a circuit tester and step unit still deployed, check that there is no circuit between the stowed micro-switch pin and the micro-switches common return pin in the step loom plug. (see diag below).

If there is a circuit – the stowed micro-switch has stuck closed or has failed closed. Remove bottom cover of step and check the stowed micro-switch (the one that would be activated when the step is closed) is not damaged, if damaged it will need replacing

Test 5: At the unplugged step loom plug at the back of the step unit or inside vehicle on BA type steps apply a 12v supply across the two power pins (see diag below).

If the step remains dead - it is likely that the motor has failed. Check first that the leads from the plug to the motor are OK particularly within the step unit – if OK then the motor has failed and will require replacing.

If the motor starts to buzz but the step does not move – reverse the polarity across the power pins and see if the step then closes. If the step can be deployed and stowed by applying the direct 12v supply across the power pins (reversing it to change the step direction) – the fault lies either in the control unit, rocker switch (fail safe), or in the vehicle loom. Go to test 6.

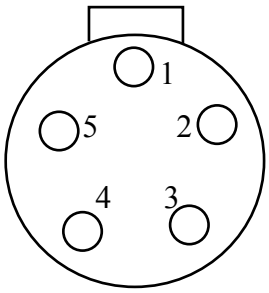
Test 6: (Fail safe only) First check the wire terminal connections of the blue wires to the rocker switch. If they appear to be OK, unplug the two blue wires or blue and blue/white wires from the rocker switch and with a piece of wire connect them together.

If the step closes - then there is a fault with the switch and it will have to be replaced.

If the step still does not close - Do a thorough check on the multi-plug connectors to the control unit – if these are in order it is likely that the control unit has failed.

Diag 1

View of pins in plug from step



No	Function
1	Power to motor
2	Stow m/switch
3	Deploy m/switch
4	Power to motor
5	M/switch common return

FAULT FINDING INSTRUCTIONS

STEP TYPE	Electric T and E	Last Updated	25/06/07
TITLE	Step Failure Diagnostics	Revision	1

STEP FAILURE IN STOWED POSITION

Test 1: With side door open / hand brake on/ ignition on/ step switch on:

Check 10 amp fuse in power lead to / in control box.

If blown - replace and recheck step operation.
If fuse does not blow again immediately or has not failed proceed to test 2:
If fuse blows immediately on attempted operation of the step:

Pull apart the loom connection plug at back of step unit and check state of the internal pin connectors.

If pins show signs of water contamination clean and re-connect plug and retest step operation.

If pins OK - re try operating step with plug still disconnected - if fuse still blows there is a short in the loom from the step plug back to the control box - check loom wires back to control box have not been trapped or become frayed anywhere obvious.

If fuse does not blow with plug disconnected - the short is within the step unit. - test with a circuit tester earthed to step case and the other lead to each of the power pins in the step loom plug in turn as shown in diagram below:

If there is a circuit from either pin to the step case - there is a short in one of the step motor wires within the step unit - remove lower cover of step and check the wires from the motor have not been trapped or become frayed and are shorting out on the case.

Test 2: Do a visual check on all wire connections to the rocker switch, (fail safe) multi plug connectors to the control unit, power switch (fully auto) and also check the door switch is earthing when the door is opened / hand brake is earthing when applied. Also check the main power lead and earth leads from the control unit are connected properly. If these all appear to be correct proceed to Test 3.

Test 3: With someone listening close to the step underneath the vehicle - check for any sound coming from the step motor when the rocker switch is pressed / door is opened to deploy the step. (make sure door is open / handbrake applied / ignition on / step power switch is on (fully auto only) . (Note if the step is wired up as fully auto 1- close the door for 1 mins before carrying out this test to allow the thermal switch on the step motor to cool and reconnect if the motor has been trying to deploy the step for some time but has been prevented by some obstruction. It will have switched off automatically and will not reconnect until the thermal switch has cooled down.)

If step motor is making a noise and continues to make a noise for as long as rocker switch is held down or door open (fully auto) - check that there is no obstruction in the step unit preventing it deploying such as a piece of gravel trapped in the slides / gear mesh of twin arm types. - remove lower cover and disconnect the link arm/s from the tread. Check that the tread can slide out easily and check gear meshing point of gear arms on twin arm units are free of any particles that could be jamming them. - If it is clear that there is no external contamination preventing the step moving then the gearbox of the motor has failed and a new motor unit will be required.

If step motor starts then cuts out with a small movement of the tread - Check that the door / handbrake lead is connected properly to the switches and these are earthing when the door is open / handbrake applied. (make sure ignition is also switched on). - If these are correct then the control unit is faulty and will need replacing.

If step motor is silent - unplug the step loom plug at the rear of the step unit and apply a separate 12v supply across the two power pins in the step loom plug (see diag below).

If the step motor remains silent - the motor has failed and will have to be replaced.

If step motor makes a noise but the step does not move - reverse the polarity and check that the step deploys. If the step does not deploy but the motor still makes a noise go back to stage above to check for objects that may be trapped in the step mechanism above.

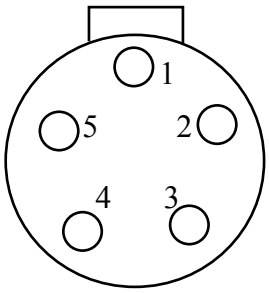
If step can be deployed and stowed by applying a direct 12v supply to the step power pins but ceases to operate when the plug is reconnected and operated by normal methods - deploy step using the direst power supply to the pins then reconnect the plug and see if the step will close. - If the step will close but does not deploy - the deployed micro-switch may have failed. (this is the micro switch that is activated by the motor arm when the step is fully deployed).

With the step in any position other than fully deployed - use a circuit tester and check for a circuit across the deployed microswitch pin and common return pin - see diag below. If there is a circuit - the micro-switch is operating correctly and there is a fault in the step control box. This will have to be replaced.

If there is no circuit - the deployed micro-switch has failed and will have to be replaced.

Diag 1

View of pins in plug from step

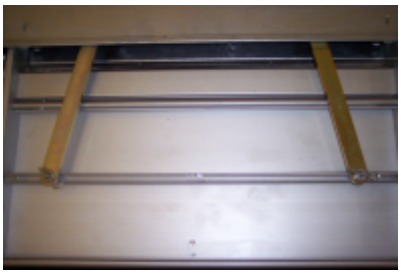


No	Function
1	Power to motor
2	Stow m/switch
3	Deploy m/switch
4	Power to motor
5	M/switch common return

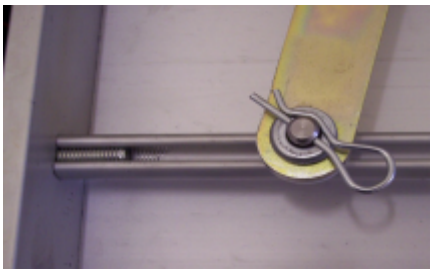
EXE600 Emergency Stow Procedure

In the unlikely event that your step should stop in the out position, please follow the procedure detailed below

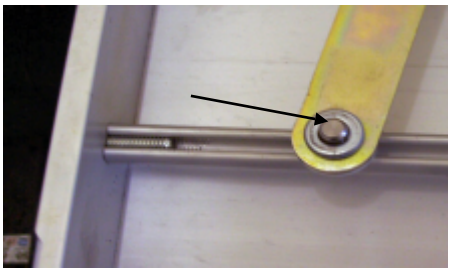
On the underside of the step, you will find 2 arms attached to the aluminium tread



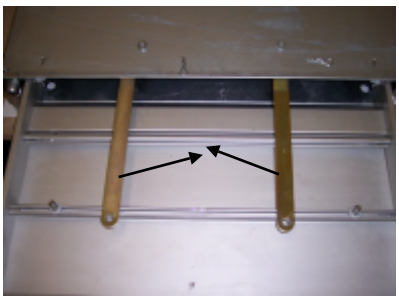
Pull the “R” clips out and retain them, you will need them later.



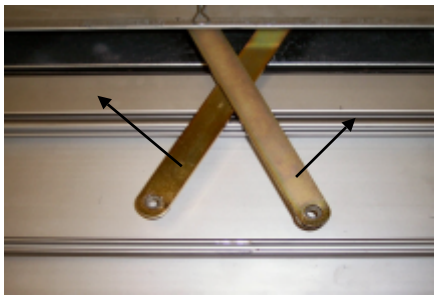
Remove the steel and nylon washers



Remove the arms and fold them in and under the step



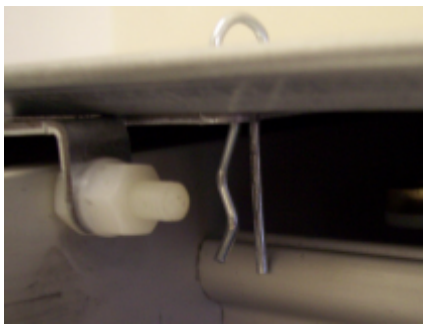
The arms need to be crossed over to fully stow inside the case



Push the step in and insert the “R” clip into the holes in underside of the case on both sides

The “R” clip needs to be fully pushed through the holes

When fully through the holes the pins will holds in the tread



IMPORTANT NOTE: This is a temporary fix to get you home only, your step should be repaired by your nearest agent as soon as possible.

Useful Information to Keep

Step Serial No
Model
Nearest Service Agent
Next Service Due
Other details